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FOREST SERVICE



MONTHLY REPORT OF THE OFFICES OF FOREST EXPERIMENT STATIONS AND DENDROLOGY

JAN 1925



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MONTHLY REPORT
OFFICES OF FOREST EXPERIMENT STATIONS AND DENDROLOGY

January, 1925

Foreword

We need, in short, a new form of literary ambition if scientific knowledge is to reach a fair proportion of the population and the scientific mood is to be widely cultivated. This ambition should be to bring home to the greatest possible number of readers as much knowledge as possible, in the most pleasing, effective, and least misleading manner. Few, indeed, there be who have this ambition, combined with the requisite knowledge, skill and sympathetic imagination to achieve it. Of all literary forms it is probably the most difficult and exacting.

An article for the general reader - a being, we may safely assume, with no great surplus of time, preparation, attention or initial interest - must do three things. And these three things it should do whether it be a sermonette in four or five hundred words, or a popular treatise on plant fertilization, the labor problem, or the history of architecture, running through four or five hundred pages. First, it should enlist the reader's attention. This must not be assumed, but must be wooed or conquered by graciousness or by force. There are many ways of doing this, but still more ways of failing. I suspect that success comes when the writer manages forthwith to identify the reader with the enterprise and make him feel that it concerns him personally and individually. In story writing it is, of course, recognized that the reader must be immediately captured, but scientific popularizers are prone to set a poor trap with no bait. The sense of obligation in the matter of serious reading seems to be somewhat on the ebb. It can no longer be relied upon in face of the varied competition offered by the modern novel and the magazines and newspapers.

The second duty of the writer is to present his facts and information in terms and in an order which will be understood by the reader and will fit into his ways of looking at things. Lastly, the significance of the information in its bearing on the reader's thought and conduct and his judgments of others should be wisely suggested. While none of these three requisites can be safely neglected if one hopes to attract and profit large numbers of readers, it is to be noted that in writing for scientists or scholarly fellow professors only the second requisite holds. It would indeed scarcely be courteous to assume that the professional reader's interest need be artificially stirred; and it would transcend the bounds of scientific decorum to hint that the facts given had any direct bearing on human life and conduct.--From "Humanizing of Knowledge," by J. H. Robinson.

FOREST EXPERIMENT STATIONS

Washington

Munns left Washington January 10 for an extended stay in the region of the Southern Experiment Station, this being the height of the field season for that station. Owing to the large amount of work and the extensive territory to be covered, he expects to be in the South until the latter part of February.

Shortly after the middle of January Weidman arrived from the Priest River Station to begin his two months' detail in the Office of Forest Experiment Stations. He finds that it is good experience for a station man to get the Washington viewpoint by actually handling the correspondence and reports that come over the desk.

Show is still on detail in the Washington office, spending most of his time on the development of standard procedure for appraising forest fire damage and in putting the final touches on his requirements reports.

In the machine tabulating section, fire studies took up 23 per cent of the time, economic studies 36 per cent, sample plots 18 per cent, with five or six remaining activities occupying the balance of the time.

DENDROLOGY

Review of the Nomenclature of Reports and Proposed New Publications

The forest arboretum started in 1910 by the Forest Service in Rock Creek Park has been abandoned, apparently because such work is not consistent with the fundamental purposes of the park. It is interesting to note in this connection that in Mr. R. M. Brown's report of the extent of the original plantation a list of some 246 different sorts of trees were accounted for in his survey. The nomenclature used in enumerating the native and exotic trees once established in this plantation has been revised and brought down to date.

The old custom, somewhat neglected of late years, of issuing circulars on various of our commercially important forest trees seems to have been revived by the proposed publication of a circular dealing with the California juniper (Juniperus californica). The peculiar value which this juniper has as a persistent occupant of dry valleys and mountain slopes from the California coast ranges and the lower Sacramento River southward is such as to render the publication of this circular of unusual interest to foresters and other students of trees that grow naturally under desert conditions.

Dendrology recently had an opportunity of reviewing, with special attention to the nomenclature used, the manuscript of a bulletin by John F. Preston on "Opportunities for the Expansion of the Paper and Pulp Industry in the Western States." Owing to the large number of changes made in the nomenclature of forest trees since the old Check List was published, it became necessary to revise the names used in Mr. Preston's bulletin in order to make them conform to present usage.

Revised Check List

It is a pleasure to announce that the manuscript of the revised Check List has recently reached Mr. Ballard's hands for typographical editing. Here it must take its turn in a rather long procession of other proposed publications. Before actually going to the printer, it must also run the gauntlet of the Department Editor's office and the chance of having to go for comments to various other offices likely to be critically interested. Altogether, it is possible that the chill of Inauguration Day will come and go, budding trees will take on the fullness of their summer foliage and the brown and sear of another autumn may come before the new Check List arrives at the Government Printing Office.

Anticipating this long delay, some of the urgent needs of forest schools and of other users of the Check List have been met by issuing a mimeographed list of 182 "Commercially Important Forest Trees of the United States," taken directly from the new Check List. Each of these trees bears its approved technical and common name. This list will be useful in the matter of newly adopted names for the trees enumerated.

Distribution of Range Maps

The old set of range maps, made some 20 years ago, is being revised in the light of much new information now at hand, and the work will be pushed until a set of maps is made available for all of our native trees. As rapidly as this revision can be completed, it will permit supplying duplicate sets of maps to the Northeastern and Great Lakes Forest Experiment Stations, which have asked for them. So far the former has received 69 new maps and the latter station has received 14.

While a very large amount of new information has been gathered on the range of our forest trees, for only a relatively small number of them is the record satisfactorily complete. It is perhaps popularly believed that the range of practically all of our trees has been thoroughly worked out. The reason for this belief is that so many books dealing with trees devote so little space to defining ranges, and too few attempts are made to map the ranges, in which the inadequacy of even our present knowledge is at once emphasized. It is hoped that by providing all of our forest experiment stations with sets of range maps for the trees of their respective regions, much fuller and more detailed range data finally will be recorded. Maps supplied now are only relatively correct. For want of much more detailed data in many localities even our most recent maps have to be drawn so that the range gives the impression of continuous growth; whereas, there may be large areas within the outline where none of a given species is to be found. It is, of course, only through the combined efforts of many different agencies that a more complete knowledge can be obtained of the distribution of our trees. After knowing our Eastern White Pine for nearly 175 years, we have just discovered a 200-mile extension of its range in the Hudson Bay country.

NORTHEASTERN FOREST EXPERIMENT STATION

Activities for the month consisted largely in progress on existing projects. Some of Behre's material was run through the tabulating machine, and plans are being made for its use on other projects. Meyer has been studying the problem as to what volume tables should be used in his spruce yield study and has about reached the conclusion that those based on Behre's taper curves will be most satisfactory for the purpose. The problem of site determination is one which is causing considerable difficulty in this as well as in Westveld's project.

Westveld attended the annual meeting of the Connecticut Forestry Association at Hartford and spoke before a meeting of State firewardens, which was held at the same time. Dana took in the meetings of the New York Section of the Society of American Foresters and of the New York State Forestry Association and gave a talk on the work of the Experiment Station at the latter. Considerable progress is being made, in large part under the leadership of the New York Section of the Society, in the development of a forest policy for the State. Additional forest fire legislation and a greatly increased appropriation for the production of planting stock seem almost certain of approval by the legislature. The purchase of State forests which would lie outside of the Adirondack and Catskill preserves, and in which cutting would, therefore, be possible, is under consideration, but it is still doubtful what action will be taken. The appointment of a working plans board, which would approve of plans for cutting by private owners, and the creation of a legislative committee to study the entire forest problem, are other suggestions which are being considered, and the outcome of which is doubtful.

Dana also attended a meeting in Boston of the Association of Northeastern Agricultural Experiment Station Directors, of which he was elected a member. The agricultural experiment station directors are now devoting their chief efforts to the attempt to bring about better correlation of activities at the various stations, with the object of avoiding unnecessary duplication and securing the adoption of a better-rounded and more effective research program. The suggestion has been made that the stations might actually pool their resources for the joint study of certain problems which are clearly regional in character. Other points brought out at the meeting were the constant pressure on the stations to participate in extension and regulatory activities, to the detriment of research, and the importance of fundamental as opposed to empirical investigations.

A course of twenty lectures in forest ecology is being offered by the Station this winter to members of the agricultural college faculty and graduate students. The lectures are being divided equally among the various members of the staff so as to avoid overburdening any one individual. The course is being taken by about a dozen members of the M.A.C. faculty, and it is perhaps safe to say that the instructors are getting almost as much out of it as the students.

LAKE STATES FOREST EXPERIMENT STATION

Most of the month of January was devoted to getting out the report of the station to the Advisory Committee. The committee met in Chicago on January 23. Excepting Dean Russell, who is now in New Zealand, Mr. Hewett, the representative of the Lake Superior Mining Institute who was about to undergo an operation, and Dean Coffey, who at the last moment was detained in Washington, all the members of the Advisory Committee were present. Aside from Zon and Mitchell from the station itself, there were also present at the conference Colonel Greeley, Colonel Peck, Tinker and Hoar from District 2, and Winslow and Leopold from the Forest Products Laboratory. The report of the Experiment Station on the results of past work and plans for new projects was unanimously approved by the Advisory Committee. There were 40 people at the luncheon which followed the meeting of the committee. At this luncheon Colonel Greeley, Mr. Osborn, Professor Cowles and Bolling Arthur Johnson made brief addresses.

The results of the analysis of forest fire statistics called forth the largest amount of discussion at the conference and had a decidedly beneficial effect upon the State of Wisconsin. The showing made by the fire protective system of Wisconsin stood out in such contrast to the other two States that the need for a change was clearly evident and the whole Wisconsin delegation was pretty much concerned over the situation and urged the State Forester to cooperate with the station in drafting laws, if necessary, or to improve the methods if no additional legislation is necessary to remedy the situation.

In the afternoon of January 23, Zon, Colonel Greeley and Colonel Peck met with the Forestry Committee of the Northern Hemlock and Hardwood Manufacturers Association, where plans for the establishment of centers of work in Michigan and Wisconsin, a cooperative project for the study of logging small trees versus large trees, and the acquisition of forest land by the Forest Service were discussed. As the result of this meeting, two subcommittees were appointed, one for Michigan and one for Wisconsin, on both of which Zon is a member, to determine the possibilities of establishing centers of field work by the station in the two States.

While in Chicago Zon delivered an address before the Chicago Women's Club on Saturday, January 24.

Two new additions to the personnel of the staff were made during the month, S. R. Gevorkiantz, a graduate of the University of California, and E. L. Demmon, both temporary assistants at the station.

The station submitted to the State Foresters and the forest schools a draft of a form for reporting on forest fires, which it hopes after general discussion and further improvement may be generally adopted. Copies of this draft were also sent to the Washington and District offices.

The work on the planting project has reached a stage with the help of Dennon during the last few weeks where interesting relations are beginning to appear. The plantations which have made the best growth are prelominantly those which were made on old fields or sites which had been cleared or cultivated. The heavier soils are generally more productive, judging from the height growth of plantations, but in specific cases the relationship may be obscured or reversed by the competition of trees, shrubs, and herbaceous vegetation on the better soils. For the first 10 or 15 years, the height growth of the four pines which have been planted most often in the region is greatest for jack pine, followed by Scotch pine, Norway pine and white pine. There are also interesting and quite distinct differences between the soils as indicated by the species of plant indicators and their relative abundance.

Interesting problems have arisen in the preparation of jack pine volume tables for the Lake States. The tree data have been kept separate by regions - Lower Michigan, Upper Michigan, Wisconsin, Minnesota Sand, and Minnesota Rock - and volume tables have been prepared for each of these localities. These tables vary more or less from each other and in an effort to compare them with each other a composite table was constructed which is an unweighted average of the five local tables.

A check of the sum of all of the volumes shown in each local table against the sums of the volumes for the same tree classes in the composite table gives an aggregate check between the local tables and the composite table.

The variation is slight for Upper Michigan, Wisconsin and the Minnesota Rock type, while for Lower Michigan the composite table is $3\frac{1}{2}$ per cent too low and for the Minnesota Sand area it is $5\frac{1}{2}$ per cent too high. A comparative check of the form of the trees of each locality fails to show any very significant difference. The absolute form quotient ranges between .67 for Lower Michigan and .70 for the Minnesota Rock.

This variation is not unexpected because the stands of Lower Michigan are usually more open and fuller crowned than those of the Rock type in Minnesota (Superior Forest) which are dense and well cleaned resulting in boles which have slight taper.

Our task is to determine whether or not the difference in the tables between the regions are truly significant or whether they are due to the unavoidable errors of sampling. If the composite is found to be generally applicable, it will be used to determine the volumes for the yield tables. But if some tables are found to have significant differences, they will have to be used locally instead of the composite. Once the volume tables have been decided upon, the work of constructing the yield table can be undertaken.

On January 26 Dr. Schenck gave three lectures here, one before the student body of the forest school, another before the Agricultural Experiment Station staff, and a third one in the evening before the Minnesota Section of the Society of American Foresters. His lectures were enthusiastically

received and still continue to be the topic for discussion among the students and the heads of the divisions. These lectures were arranged for by the station.

The State Auditor has requested the station to prepare a pamphlet outlining the State forest policy for Minnesota.

CLOQUET FOREST EXPERIMENT STATION

The month of January was spent mostly on working up data of cut-over lands and the five-year records on the plantations. A start has also been made on the statistical atlas for the management of the Cloquet Station. This atlas will give the maps of the forties, and also, on a separate sheet, the stands of timber by species and types and the predicted growth. There will also be provision made for recording the amount cut on the various forties with cost of logging and total amount received for material sold. This winter's logging has been somewhat delayed due to the lack of snow. Cutting in the green timber has stopped for the present because it was impossible to haul the logs to town.

Hansen spent two days in Chicago at the meeting of the American Forestry Association and the Advisory Committee to the Lake States Forest Experiment Station. Three days were also spent at the Madison Laboratory in conference with the members of the Laboratory and representatives of the Forest Schools.

Maryland

George L. Wood, Baltimore.

Vice-Pres. & Gen. Mgr., R.-E. Wood Lumber Company.

F. W. Besley, Baltimore.

State Forester.

Virginia

John H. Hassinger, Abingdon.

Hassinger Lumber Co.

Chapin Jones, Charlottesville.

State Forester.

W. D. Tyler, Dantes.

Clinchfield Coal Corporation.

North Carolina

Andrew Gannett, Asheville.

President, Gannett Lumber Company.

R. B. Robertson, Canton.

President, Champion Fibre Company.

C. C. Smoot III, North Wilkesboro.

C. C. Smoot Sons Company.

John Cecil, Biltmore.

Biltmore Estate.

J. S. Holmes, Raleigh.

State Forester.

Dr. B. W. Kilgore, Raleigh.

Dean, North Carolina Agricultural College.

Colonel J. H. Pratt, Asheville.

President, Western North Carolina, Inc.;

Director, Southern Forestry Congress;

Director, American Forestry Association.

G. A. Cardwell, Wilmington.

Agricultural and Industrial Agent, Atlantic Coast
Line Railroad Company.

Georgia

B. H. Stone, Blairsville.

Forester, Pfister & Vogel Leather Company;

President, Georgia Forestry Association;

Past President, Southern Forestry Congress.

The Advisory Committee appointed by the American Paper and Pulp Association consists of:

Milton E. Marcuse, Richmond, Va.
President, Bedford Pulp and Paper Co.

H. T. Nichols, Gordon, Ga.
Pynetree Paper Co.

Reuben B. Robertson, Canton, N. C.
President, Champion Fibre Co.

Dr. Job Taylor, Roanoke Rapids, N. C.
President Halifax Paper Corporation.

Programs have been prepared for both meetings and the replies to the announcement which have been received indicate a good attendance and a lively interest.

Investigative program for 1925

Work on the 1925 investigative program was started at a meeting of the staff at which current projects were reviewed and new activities considered for recommendation as projects. The project sheets for next year have been prepared.

Fire damage study (Pf-4)

A reexamination of permanent sample plots established in 1923 in a burned pine stand shows a continuing mortality among all sizes of pines in the mountain pine type. A total of 14.6 per cent of the trees which were tagged in the spring of 1923 following a fall fire are now dead. All these trees showed some live foliage when tagged and most of them have died as the result of crown injury rather than injury to the bole. An additional 8.1 per cent were considered too weak to survive, when examined in January. There is still a good probability that other trees which have suffered the loss of half or more of their crowns will eventually succumb. The humus which was destroyed by the fire has not yet begun to accumulate, since the old leaf crop was largely destroyed by fire.

The study of fire damage during the past two years has produced some important facts concerning damage to species, size classes, and the character of reproduction which follows fire. This is being assembled in a progress report on fire damage.

It does not seem desirable to give up the attempt to correlate damage with the causal factors, even though the number of variables which control damage extends into the thousands. Plans recently drafted for continuation of the study of fire damage include the use of permanent plots for the study of growth and continuing mortality and further examination of burned areas by a system of temporary sample plots, systematically distributed, to analyze the causes of damage.

Plot methods are proposed because they yield more readily to statistical analysis, especially deviation from the mean, and because they can be made by selection to represent a given type, site, age class, and condition of burn.

Southern white cedar (TS-193)

Korstian and Reincke devoted the entire month to work on the southern white cedar yield tables. The old conventional method failed to produce satisfactory tables so the site index method was substituted. The height of the dominant stand at 50 years of age was used as the criterion of site classification. After considering several schemes for the rejection of abnormal plots, that used by Bruce and Brown in their work on the southern pines was finally selected. The criterion of two times the standard deviation of the basal areas eliminated 16 plots out of a total of 63. Further study of these plots revealed that they were, for the most part, abnormal in the relation between number of trees and average diameter breast high (as obtained through average basal area). Some had unusually small average diameter for their number of trees while others had an unusually large average diameter.

Bruce and Brown's method of constructing their yield tables for longleaf pine afforded a number of valuable suggestions, particularly in the construction of the basal area curves. After a complete harmonization was effected between basal area, average d.b.h. and number of trees this work has progressed quite rapidly. Special methods were devised to overcome a number of difficulties which arose from time to time. Satisfactory tables are now being developed which conform quite closely to the basic data. The basal areas of the plots show an average deviation of only 5.6 per cent from the curved values. The actual cubic foot and cord volumes of the individual plots show deviations from the final yield curves averaging only 5.4 per cent and 7.5 per cent, respectively. In all three cases these deviations are almost equally balanced between positive and negative values.

Along the way every one of the difficulties which have been encountered in the construction of these tables has been met and overcome. The work has been a most interesting and profitable one, and the results are most satisfactory. The tables are now being prepared for publication and will be ready in a few weeks.

The work on the southern white cedar yield tables has been a most successful one, and the results are most satisfactory. The tables are now being prepared for publication and will be ready in a few weeks.

SOUTHERN FOREST EXPERIMENT STATION

General

Important events of the month were the approval by the Secretary of Agriculture of the retention of New Orleans as the permanent headquarters of the station, and the arrival of Mr. E. N. Munns on the 12th, for an extended stay with us. Forbes attended the Seventh Southern Forestry Congress at Little Rock, Ark., January 19-20, where he spoke extemporaneously on the subject of pine reproduction in the hardwood type. Forbes reviewed Shaw and Kotok's Bulletin No. 1294, "The Role of Fire in the California Pine Forests" for publication in the Southern Lumberman. A representative of an Iowa bond house, interested in bonds of small southern municipalities, called to obtain general economic information on the South.

Protection

The Roberts Plots (longleaf), and the various loblolly plots at Urania, were burned by Munns, Forbes, and Hine. The Director reviewed Hine's article entitled "Hogs, Fires, and Disease versus Longleaf Pine." Forbes revised his own working plan for extensive surveys of fire damage, and discussed with Munns the work on this project. A few fire survey strips were run by Munns, Forbes, and Hine in the neighborhood of Urania.

Measurements

Averell and Tinker, after three weeks' measurement of slash pine for volume tables in west Florida and of longleaf in South Carolina, spent the balance of the month scouring South Carolina for shortleaf stands, in the southern second-growth pine study. They had considerable difficulty in locating pure stands of shortleaf, but picked up a few good stands of slash, longleaf, and loblolly that seemed too good to ignore. At Sumter, S. C., they obtained our latest Ford, which is indispensable in work of this character.

Management

Shivery spent the month on the methods-of-cutting study at Bogalusa. With the assistance of Byrne and Reynolds, Shivery was able to accomplish a large amount of field and office work on four of the five cutting blocks of this project, namely, Desirable Practice, Longleaf; Desirable Practice, Shortleaf and Loblolly; Minimum Requirements, Longleaf; Minimum Requirements, Shortleaf and Loblolly. Stumps were located, measured, and tallied; heights of trees and lengths of crown were taken; and computations were kept current during rainy days.

While in New Orleans Hine spent a few days working up data on the various management projects, and discussing them with the director.

Munns and Mine thinned the Maxwell plot at Urania. Both felt that more trees should have been removed, but they were influenced by the original plan of thinning. They made a map one chain square, locating trees and stumps, by number, in each of three plots in the Maxwell series. They also made two grades of thinning according to the French method (*par la haute*) on two 1/4 acre plots, and took full individual tree records. All trees were removed to a safe distance from the plots, or burned. One area of about 1/4 acre was then cut to a 4.5 inch diameter limit, the remaining trees tagged, and some measurements taken, as on the French thinning plots. An area of 1/4 acre was cut of all but 22 trees, which were left for seed trees. Full measurements of a 1/4 acre plot for a permanent yield plot were made. The Castor plot was not thinned because it appeared understocked and had not fully responded. The short crowns are possibly due to too late thinning or fire.

Naval Stores

Wyman completed the last four of a series of five articles entitled "Hints to Farmers on Leasing Timber for Turpentine Orcharding," intended for farm papers. He also prepared a working plan for the extensive survey of turpentine and fire damage, longleaf and slash pines.

Forestation

Considerable work was accomplished on these projects by Hadley, Wakeley, and Reynolds. The January sowings were made in the nursery, where some fall-sown shortleaf seed germinated unexpectedly in 62 days. Planting unpruned longleaf was found impracticable, as it requires too much time to lift and the roots coil in the dibble holes. The longest root measured was 34 inches long. Rabbits worked havoc by nipping the tops off of a good many slash seedlings planted in the beginning of January. They seemed to confine their work to a strip 200-300 feet wide adjoining a "bay gall."

We received continued cooperation from the Great Southern Lumber Company, under agreements earlier made. The company furnished us with planting stock, and lent us two of their best planters for our spacing plantations. Hadley also made cooperative arrangements with Mr. Mitchell, Assistant Forester for the Great Southern Lumber Company, whereby Mitchell will devote a portion of his time to the study of the Great Southern Lumber Company's artificial reforested areas. This cooperation will be very valuable to us since Mitchell is familiar with the exact location and history of most of the plantations and direct seeded areas.

The following seed storage tests were made at Bogalusa with longleaf, slash, and loblolly pine: stored in unsealed paper bags, sealed paper bags, air-tight fruit jars, and disinfected air-tight fruit jars with disinfected seed. Seed stored in paper sacks were placed in a galvanized ash can, and samples of all seed used in storage tests were reserved for tests for germination per cent at times of storage. If the amount of seed on hand permits, soil storage will also be tried out.

PACIFIC NORTHWEST FOREST EXPERIMENT STATION

The entire month of January was spent in the office by all the force. Another temporary assistant, Louis Langdell, was hired the middle of the month to speed up the Douglas fir computing. He was on growth studies back in 1912 but has since been a statistician computer. The force now consists of eight which pretty well fills up the four small rooms. About 30 per cent of our long-expected furniture has arrived so far - in eight different consignments.

Meetings of the staff have been held once or twice a week, and will be during the rest of the winter, for the discussion of matters of interest to all, such as station policy, office procedure, program of work, relationships, branch stations, each other's work, etc. The Director also attends the weekly meeting of the District Committee to maintain that contact with the District Office. He was at some of the sessions of the Supervisors' Meeting held January 26 to 29. The meeting was informal and chiefly devoted to fire; the Director, however, gave a five-minute talk on the station's relation to the Supervisors on the invitation of Mr. Granger.

Revision and combination of the minimum requirements and desirable practice reports was concluded and sent to Washington early in the month. Three copies were also sent out to the timbermen's associations for circulation among their members for their criticism.

The number of callers at the office is increasing. A recitation of the things they come to inquire about gives an idea of the variety of their interests. Here are a few, for example:

C. S. Chapman of the Weyerhaeuser Logged Off Lands Company wants to know how to determine the site quality of land which is completely logged, burned, and now without tree growth.

Deputy State Forester Cronmiller (Oregon) comes to ask about arborum material and to tell of interesting results from the humidity readings that State men took last summer. (To be published in the February Timberman.)

H. T. Gisborne of the Priest River Station, on annual leave in Portland, gave us a half day of his time to help us from his experience with fire studies.

J. G. Eddy, prominent lumberman of Seattle, came to secure information about tree breeding and to solicit our undertaking in cooperation with Luther Burbank a project in breeding up a race of rapid growing Douglas fir, or some other conifers. Mr. Eddy is sufficiently interested to offer financial cooperation.

Mr. Manning, Chief of Forest Management in British Columbia, spent a half day with the Director, talking principally brush disposal practices and problems.

Professor Knowlton of Reed College came to ask suggestions for arrangements for the A.A.A.S. Western Division meeting next June; as a result it is probable that the field trip by the delegates will this year be at Wind River.

One caller, name unknown, who evidently saw the name on the door, came in to ask what we were experimenting with, saying that he too was a professional experimenter and worked with everything from derricks to gooseberry bushes - he had once persuaded one of the latter to be a tree.

District Forester Granger called to see our quarters and talk over a plan for interrelations and cooperation.

District Forester Flory of Alaska also called as a preliminary to fuller discussion of Alaska work with Mr. Heintzleman next month.

An announcement in the paper this month by the Crown-Willamette Paper Company is of signal interest in the progress of reforestation. That company is to plant this winter 100,000 wild Sitka spruce seedlings on some of their twice-burned logged off land in the Lower Columbia River region, and enlarge their nursery to a capacity of 700,000 trees annually. This is a declaration of an intention to practice forestry which marks a new epoch. Most of their lands are reforesting naturally very satisfactorily and they already have a good protective organization.

All members of the office have spent much time in preparation for the meeting of the Regional Investigative Committee February 3-4. This was made the occasion for reviewing all past work to take an inventory of what was now known and available. A rather long report was prepared on all topics (except Forestation which is being handled by Mr. Kummel of the District Office) and copies sent to the ten members of this committee.

Isaac prepared a progress report on a fertilizer experiment which has been running at Wind River for some time, and got together the material for a report on noble and silver fir seed storage tests. After his material was gone over for the Investigative Committee meeting he spent the remainder of the month in putting in order the photographic collection which contains an accumulation of many years. Prints have been segregated and are now being matched with films and descriptions.

McArdle spent most of the month on the office computations of the Douglas fir yield study. It was decided to incorporate with the 1909 volume data some 600 tree measurements taken by Dr. Boyce, and this has involved a large amount of computing which the two temporaries have done. About a third of the month McArdle devoted to a thorough search of the District Office files to make a complete list of all volume tables, yield tables, and tree studies and work of a like nature which has been done in this District since the year one. The immediate use of this compilation was in preparing recommendations for the Investigative Committee. He also prepared a memorandum on the very puzzling and involved question whether temporary sample plots for scientific study should be laid off according to horizontal or surface measure. He also wrote a memorandum based on a survey of the literature concerning the eleven various methods of classifying sites.

Simson, aside from writing a memorandum on fire studies for the Investigative Committee meeting, has been devoting his time to preparing correlation sheets of 1924 weather records. He has prepared several office memoranda on details of fire studies and started an annotated bibliography of lightning, static and hail.

PRIEST RIVER FOREST EXP. STATION

Weidman left Missoula on January 12, immediately following the annual District Investigative meeting, for a two months' detail to the Washington office.

Gisborne prepared a 6,000-word review of Show and Kotok's latest bulletin, for use in one of the lumber trade journals. The remainder of Gisborne's time was devoted to routine correspondence, starting an assistant in the analysis of weather records to determine their value in a statistical method of forecasting precipitation, and to a complete revision of his fire studies report preparatory to submission for publication.

Wahlenberg has been in the Missoula office the entire month. His time has been distributed between the Investigative Committee meeting, the preparation of two short articles for PR and Applied Forestry Notes, and the compilation of experimental forestation reports from 1912 to date. These forestation reports are showing very clearly the influence of age class of white and yellow pine planting stock on survival according to topographic aspects.

Haig profited by a ten-day detail to the Washington office while he was in the East on annual leave. His discussions with Mr. Bruce concerning yield studies and graphic methods of analysis were very productive. He brings back new ideas of use to all of us. The last few days of the month were devoted to yield study computations.

Kempff reports his time as being divided between maintenance, the computation of thinning plot measurements, and timber sale scaling and supervision on the experimental forest. Heavy snows have delayed both felling and hauling on this sale.

It is peculiar that Kempff reports spending some time on the construction of a chart to permit the easy computation of tree heights from Abney readings and slope measurements, while Haig returns from Washington with a new graphic method of accomplishing this same purpose. How many others are spending time with this same objective? Haig is planning an article for the Journal showing his results and perhaps incorporating Kempff's method.

Forest Assistant J. N. Diehl, from the Flathead Forest, has been detailed by Operation for six weeks' assistance to the Experiment Station. Diehl is checking Idaho and Montana precipitation records against the 45-year record from Spokane, Walla Walla, and Missoula, which seems to offer a means of forecasting the trend of precipitation nine months ahead in this region.

BLAINT EXPERIMENT FOREST STATION

January Activities

The most important activity of January was the meeting of the District Investigative Committee in Denver on the 22nd and 23rd, which was attended by both Roeser and Bates. Besides five or six members of the District office and a Supervisor, there were present this year, for the first time, representatives of the two Forest Schools in Colorado, Professors Gordon Parker and W. J. Morrill. Since both of these men are past Forest Supervisors, they were able to enter into the discussion of D-2 problems with first-hand information. The plan followed this year was decidedly different from the past, very little time being given to the routine of the individual projects, but a discussion of the broader problems of the District being carried on, which naturally brought out the important points of existing or proposed projects. It is believed that by this method a much better perspective of the work and needs was gained.

Bates was required to be at the station from January 9 to 12, to close up a small group of soil tests whose time expired, and for seed sowing in the yellow pine extraction tests, but owing to the inclement weather, it was not feasible to carry on further extraction tests as had been planned.

More than half of the working time of the month was again used by both Bates and Roeser in tabulations and computations on management projects, directed toward the complete survey of existing knowledge of growth rates. At Denver, on the 23rd, Bates gave a general sketch of the information already worked up, to the local section of the Society of American Foresters.

Among the fundamental studies, it is felt that at this time there can be nothing more important than obtaining comprehensive data on transpiration, which will check the earlier conclusions. This becomes apparent as those conclusions come to enter more and more into all sorts of problems. A start in this direction was made in 1924, and for 1925 it has been planned to handle a large number of the seedlings of each species, en masse, in ash cans. A thorough consideration of this plan, however, has brought out technical difficulties which are almost insurmountable, and it has, therefore, been decided to pot the trees individually, a method which in 1917 gave extremely accurate results. A cheap method of accomplishing this has been devised, with the elasticity necessary for carrying the trees through several seasons. A working plan is being drawn up so that the work can be arranged for well in advance of the seasonal requirements.

February Plans

There will be still further work on soil tests (T-5) and yellow pine seed extracting (Fs-101 (a)) which will require Bates' presence at the station for a few days. Aside from this, the month will be devoted almost exclusively to office work on management projects. Attempt will be made to prepare the draft for the descriptive circular of the Experiment Station.

DISTRICT 5 - CALIFORNIA DISTRICT

The work in Research during January has been rather more varied than usual. Ayres finished plotting the volume table measurements taken last summer and is now preparing the taper curves. West discontinued work on California fire history temporarily to assist Grazing in getting out the Annual Fish and Game report. Miss Vinther's time has been occupied largely in assisting Public Relations in the sending out of Show and Kotok's bulletin, "The Role of Fire in the Pine Forests of California." Besides 4,000 bulletins, a large number of return postal cards are being mailed out to persons who might desire copies.

A preliminary draft of the Annual Investigative Program has been prepared and sent to Show in Washington for summary of some of the projects and final revision. The annual Investigative Committee meeting is set for March 5, to permit Show's attendance and avoid conflict with a general District Protection Conference soon to be held here.

A brief for the District Forester was prepared for publicity use, summarizing the important points of a number of reports and publications having a bearing on better logging and protection of private lands. At the request of Management a summary was made of fire weather investigations which have a bearing on new timber sale regulations requiring better slash disposal and closing down of operations during periods of exceptional fire hazard. As a part of the Service Study Courses a paper was prepared on the interrelation of grazing and forest management.

Considerable reviewing was done during the month. Some little time was spent in this way on Krauch's "The Determination of Increment in Western Yellow Pine Stands of Arizona." Reviewing "The Timberman" for Botanical Abstracts, ordinarily a mere detail, was a fair- ed job this month, because it contained reports of the Pacific Logging Congress and the Annual Meeting of the Western Forestry and Conservation Association.

One job productive of interesting facts was the planimetering of areas from a detailed map of the last Stanislaus Methods of Cutting plot. When summarized the results show the rapid increase in the proportion of the ground dragged bare in yarding as the donkey setting is approached. Twenty-five per cent of the area, as a whole, which lay 800 to 1,500 feet from the yarder, was covered by skidding trails. Slash piles and slash burning covered 7.4% of the area. About 15% of the slash was unburned. About 87% of the slash covered and burned area was outside of skidding trails, or in places where seedlings might survive logging. Many other points were brought out by the tedious mapping and planimetering of details on this ten-acre area.

LIBRARY

During January 949 books and periodicals were loaned from the library, and 129 members of the Service and others consulted the library in person.

There were 187 books and articles indexed for the catalogue during the month.

MANUSCRIPT NEWS NOTES

Fremont

A Key to the Identification of Some Coniferous Seedlings. C. G. Bates. (Jour. Botany.)

District 5

An Instrument for Measuring Increment Cores. Duncan Dunning. (Jour. Forestry.)

District 4

Forest Planting in the Intermountain Region. C. F. Korstian and F. S. Baker. (Bulletin - Page proof.)

The Relation of Soil Acidity to Artificial Reforestation. F. S. Baker. (Jour. Agr. Res.)

Aspen in Forest Management. F. S. Baker. (Bulletin. Page proof.)

Southern

Kerosene emulsion in control of Toumeyella. E. W. Hadley.

New Forest Service Bulletin of Interest in South. R. D. Forbes. (Rev. of Bul. 1294). (Southern Lumberman.)

Hogs, Fire and Diseases vs. Longleaf Pine. W. R. B. Hine. (Lbr. Tr. Journals)

Southwestern

Determination of Increment in Out-ever Stands of Western Yellow Pine in Arizona. H. Krauch. (Bd. Review.)

Annual Investigative Program.

Priest River

Accelerated Growth After Cutting Western White Pine. I. T. Haig.
(Progress Report.)

Appalachian

Investigative Work of the Appalachian Forest Experiment Station. E. H. Frothingham. (Summary of purpose, scope, objectives, and program.) Mimeographed.

IN PRINT

Pearson, G. A. Growing Season for Western Yellow Pine. Jour. Agric. Res. Vol. 29, No. 4.

Kittredge, Joseph. Objectives of the Forest Experiment Station. American Horticulturist. Dec. 1924, pp. 371-373.

Frothingham, E. H. Some Silvicultural Aspects of the Chestnut Blight Situation. Jour. Forestry, Vol. 22, No. 8, 1924.

Frothingham, E. H. New Forests on Burned Spruce Lands. Official Record December 10, 1924.

Korstian, C. F. The Tragedy of the Chestnut. Southern Lumberman, Dec. 20, 1924.

Proceedings of Madison Conference. March 10-22, 1924.

McCarthy, E. F. Problems of Hardwood Timber Production. Lumber World Review, Jan. 25, 1925. Read at Southern Forestry Congress.

Zon, Raphael. Forestry and Land Development in the Lake States. Jour. of Land and Public Utility Economics, Jan. 1925.

Forbes, R. D. Some Cosmic Relationships. Jour. For. Feb. 1925.

Donald Bruce and Francis K. Schumacher. Revised Volume Tables for Second-growth Redwood. Jour. For. Feb. 1925.

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